

Method and protocol for managing broadband IP services in a layer two broadcast network

Abstract:

A method and protocol for managing broadband IP services in a layer two broadcast network. The service information will be advertised by each end system (server) on the layer two broadcast network. There will have multiple end systems that provide the same service. The intermediate system will forward service request packet to one of the available end system that the intermediate system learned from the service advertisements by the end systems. If the end system determines to instruct intermediate system to forward certain traffic from certain source to it, it can advertise the flow information to intermediate systems. This flow could be a TCP connection or any packets that are specified by the flow pattern matching rules. The intermediate system will always forward the packet based on the flow that is advertised by the end system. For the packets that do not match any advertised flow, the service table will be looked up and one of the servers will be picked up based on the response metric and other policies. Both service and flow classification are specified in pattern matching rules to allow faster execution by the pattern-matching network processors. The service information contains the operations of registration of service sent by server; the service attributes, the service congestion status and server list for a particular service. The flow advertisement contains the flow attributes that could contain the quality of service requirements to support real time application. And the flow advertisement contains also the flow attribute that could insert or delete label or tag or modify the type of service and priority within the packet header to support multiple protocol label switching (MPLS), DiffServ and 802.1p priority. The Assigned Numbers Authority protocol will also manages all the numbers that are shared by these servers that work together as one logical IP entity on this network. The service information, flow advertisement and Assigned Numbers Authority protocol together allows multiple physical end systems (servers) load-balanced serve a service like one logical end system (server). Each physical end system (server) can be added on the fly to share the load and gracefully shut down (de-register) on the fly without interrupting other systems on the network and affecting the service.